REMARKS

Claims 1-22 are pending in the application. Claims 1 and 11 are amended. Claims 19-22 are cancelled without prejudice. Claims 1-18 stand rejected. The Examiner's objections and rejections are addressed below in substantially the same order as in the office action.

Independent claims 1 and 11 are amended to include features described in the application. Support can be found in paragraphs [0009], [0028], and [0036] through [0039]. No new matter is added by the amendment.

ELECTION/RESTRICTION

Applicant affirms the election made without traverse to the invention of Group 1 as claimed in claim 1-19. Claims 19-22 are cancelled without prejudice.

REJECTIONS UNDER 35 USC § 102

Claims 1, 2, 6-16 and 18 are rejected under 35 USC § 102(b) as being anticipated by Cretin et al. (5,481,502) or Hackett (5,231,251). Claims 1, 2, 6-16, and 18 are rejected under 35 USC § 102(a) as being anticipated by Page et al. (6,337,636). Claims 1-18 are rejected under 35 USC § 102(e) as being anticipated by Iseli et al. (2003/0128627).

The present invention as claimed in amended claims 1 and 11 is to an expandable permanently-deployed ocean-bottom seiamic cable system. Claim 1 is amended to clarify that the sensor block is deployed on the sea floor. Claim 1 further includes "one or more sensor modules, wherein the one or more sensor modules form one or more sensor lines, and wherein the one or more sensor lines being mated at the deployed location to form the hub, each of the sensor modules, sensor lines, hub and backbone forming a node of the apparatus and wherein the sensor block is expandable to vary a block size by adding one or more additional substantially similar nodes for accommodating a range survey areas using a substantially similar node architecture."

The invention addresses problems faced specifically in permanent cable applications offshore. The cost of redesigning, testing and deploying hardware in such an environment is sometimes prohibitive and expanding an already designed and deployed system according to the typical system is not possible. Thus the claimed invention represents a significant advance in permanent seafloor seismic cable installations.

For a reference to anticipate a claim, the reference must teach each and every element of the claim as arranged in the claim.

US 5,481,502 to Cretin et al. discloses a permanently installed acquisition system that may be active or passive. Fig. 1 shows a system deployed in a well environment. PCL refers to permanent local stations and STj refers to seismic receivers. The description at column 5, lines 5-14 discloses that the receivers and stations may be deployed on a sea floor. Cretin et al. mentions nothing relating to expanding the system using substantially similar nodes including sensor line being mated at the deployed location. Thus, the reference does not teach each and every element of amended claims 1 and 11 as arranged in the claims.

U.S. 5,231,251 to Hackett describes a moveable land seismic data acquisition system. Applicant notes that the Examiner states that Hackett mentions that it is capable or preforming in an underwater environment. Applicant has carefully reviewed the reference and finds no support for the Examiner's statement that Hackett teaches a system capable of performing in an underwater environment.

Furthermore, Hackett expressly teaches that the system described therein is a moveable system. The prior art discussed in columns 1-2 use moving truck-based recorders. The description at column 4, lines 33-46 states, "Once a recording has been completed, a number of sections forming cable 14 are removed from one end and reconnected to the other end, along with their conduits 16 and geophones 18, and the recording cycle repeated until the linear length of the survey line has been recorded. Thereafter, the entire length of cable 14, conduits 16, geophones 18, and recorder 12 are moved to the next survey line and recording started again. Obviously, the movement of approximately two miles of heavy cable is a labor-intensive and expensive task. The use of a long array of geophones such as shown at T_1 provides a high signal-to-noise ratio but detracts from its ability to receive and transmit high frequency data." Hackett does not teach a permanently installed system, and Applicant submits that the reference further fails to teach an underwater deployed system, the Examiner's contrary conclusion notwithstanding. Therefore, the reference fails to teach each and every element of amended claims 1 and 11 and arranged in the claims.

Iseli et al. (2003/0128627) is assigned to the Assignee of the present application. The reference describes a system having distributed control over the several units comprising the system. Additionally, the reference describes an apparatus and method for packaging and transmitting data efficiently and with more reliability. The reference discusses hydrophone use in offshore applications. The reference mentions nothing about permanent seafloor installation and

mentions nothing about an expandable seafloor system as claimed in amended claims 1 and 11. Therefore, the reference does not teach each and every element of the amended independent claims as they are arranged in the claims.

REJECTIONS UNDER 35 USC § 103

Claims 3-5 and 17 are rejected under 35 USC § 103(a) as being unpatentable over Cretin et al. (5,481,502 when taken in view of Iseli et al. (2003/0128627) or Tanenhaus et al. (6,255,962).

Claims 3-5 depend from amended claim 1 and claim 17 depends from amended claim 11. These claims are allowable for at least the same reasons as discussed above for the respective independent claim.

Two conditions must be present to uphold a rejection based on obviousness. First, the proposed combination must teach each and every element (expressly or inherently) of the rejected claim as arranged. Second, there must be some motivation or suggestion to combine the references without resort to hindsight reasoning.

Here the proposed combination of references do not teach every element of the rejected claims. Claims 3-5 each depend from amended claim 1, and thus necessarily include efery element of claim 1. Therefore, the rejected claims include "one or more sensor modules, wherein the one or more sensor modules form one or more sensor lines, and wherein the one or more sensor lines being mated at the deployed location to form the hub, each of the sensor modules, sensor lines, hub and backbone forming a node of the apparatus and wherein the sensor block is expandable to vary a block size by adding one or more additional substantially similar nodes for accommodating a range survey areas using a substantially similar node architecture." The proposed combination does not teach or suggest a permanently-installed sensor block deployed on the seafloor in combination with sensor line mated at the deployed location where the block is expandable as claimed. No single reference teaches this element and no combination of art of record teaches or suggests the element. Consequently, the first requirement to uphold a rejection based on obviousness does not exsist.

CONCLUSION

For all the foregoing reasons, Applicant submits that the application is in a condition for allowance. A check in the amount of $120.00 us submitted herewith for the associated petition for an extension of time. No additional fee is believed due for this paper. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. **13-0010 (IO-1089US)**.

Respectfully submitted,

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CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

I hereby certify that this paper, along with any referred to as being attached or enclosed, is being mailed to the Attention: MS: Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, via the United States Postal Service, First Class Mail, postage prepaid on this 9 day of December, 2004.

Beth Pearson-Naul

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